FINAL
SITE SAFETY AND HEALTH PLAN

PHASE III / PHASE IV
TANAPAG VILLAGE, ISLAND OF SAIPAN
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

Prepared for

Environmental / DoD Support Branch
United States Army Corps of Engineers
Honolulu Engineer District
Building 230
Fort Shafter, Hawaii 96858-5440

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Contract No. DACW62-00-D-0001
Delivery Order No. 002

May 2001

Environmental Chemical Corporation
99-1151 Iwaena St.
Aiea, HI 96701

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SITE SAFETY AND HEALTH PLAN

Phase III / Phase IV
Tanapag Village, Island of Saipan
Commonwealth of the Northern Mariana Islands

May 2001

I hereby certify that the enclosed Site Safety and Health Plan, shown and marked in this submittal, is that proposed to be incorporated with Contract Number DACW62-00-D-0001, Delivery Order 002, Phase III/ Phase IV, Tanapag Village, Island of Saipan, Commonwealth of the Northern Marianas. This Site Safety and Health Plan is in compliance with contract specifications and OSHA requirements, and is submitted for Government approval.

Reviewed by:

Project Manager Date

Project Engineer Date

Quality Control Systems Manager Date

Accepted as a submittal:

USACE Contracting Officer Date

SPECIFICATIONS

Project Designation:	Remediation of Polychlorinated Biphenyl (PCB Contaminated Soil, Tanapag Village, Island of Saipan, CNMI
Contract Number:	DACW62-00-D-0001, Delivery Order Number 002
Location:	The site is located in the village of Tanapag, Island of Saipan
Client Contact:	Helene Takemoto (808) 438-6931
Representative:	United States Army Corps of Engineers (USACE), Honolulu Engineer District
Contractor:	Environmental Chemical Corporation (ECC) 99-1151 Iwaena Street Aiea, Hawaii 96701
Program Manager:	David Cavagnol
Project Manager:	Kevin McCaskill
Project Engineer/ Thermal Operations Manager:	Allen Beaudin
Quality Control (QC)/Site Safety and Health Officer (SSHO):	Ryan Nelson/Morris Ridenour
Corporate H&S Officers:	Dean Osaki, Certified Safety Professional (CSP), Certified Hazard Control Manager (CHCM), Certified Construction Health and Safety Technician (CHST) & Marcus Johnshoy, Certified Industrial Hygienist (CIH)
Plan Preparer:	Dean Osaki, CSP, CHCM, CHST
Preparation Date:	30 May 2001

APPROVAL

This Site-Specific Safety and Health Plan (SSHP), prepared for the Remediation of PCB Contaminated Soils, Phase III/Phase IV Tanapag Village, Tanapag, Island of Saipan, Commonwealth of the Northern Mariana Islands, has been reviewed and approved by Mr. Dean Osaki, CSP, CHCM, CHST, in accordance with project specifications.

This plan has been reviewed and approved prior to submittal.

_____

Dean Osaki, CSP, CHCM, CHST
Environmental Chemical Corporation
1240 Bayshore Boulevard
Burlingame, CA 94010

ADOPTION

This SSHP for the Remediation of PCB Contaminated Soils, Phase III/Phase IV Tanapag Village, Island of Saipan, Commonwealth of the Northern Mariana Islands, has been reviewed, accepted, and adopted by ECC. As the primary contractor, ECC agrees to implent this plan, including any and all accepted additions, deletions, and revisions, for all phases of field work specified for this project. The requirement of this plan shall apply to all ECC employees, its subcontractors and all other personnel entering and/or performing work in regulated areas as specified by this plan.

This SSHP has been reviewed, approved and adopted by ECC, pending approval by the contracting agency.

_____	_____
Dean Osaki, CSP, CHCM, CHST	David Cavagnol
Environmental Chemical Corporation	Program Manager
1240 Bayshore Boulevard	99-1151 Iwaena Street
Burlingame, CA 94010	Aiea, Hawaii 96701

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ACGIH	American Conference of Government Industrial Hygeinists
AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
APP	Accident Prevention Plan
APR	Air-Purifying Respirator
bpm	beats per minutes
CHCM	Certified Hazard Control Manager
CHST	Certified Construction Health and Safety Technician
CIH	Certified Industrial Hygienist
CFR	Code of Federal Regulations
cm	centimeter
COR	Contracting Officer Representative
CPR	Cardio-pulmonary resuscitation
CSP	Certified Safety Professional
CRZ	Contamination Reduction Zone
ECC	Environmental Chemical Corporation
EPA	Environmental Protection Agency
EZ	Exclusion Zone
F	Farenheit
HTRW	Hazardous, Toxic, and Radioactive Waste
IARC	International Agency for Research on Cancer
IDLH	Immediate Dangerous to Life and Health
ITD	Indirect Thermal Desoption
mg/m^3	milligram per cubic meter
MSDS	Material Safety Data Sheet
NIOSH	National institute for Occupational Safety and Health
No.	Number
NRR	Noise Reduction Rating
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PE	Project Engineer
PEL	Permissible Exposure Limit
PGM	Program Manager
PM	Project Manager
PPE	Personal Protective Equipment
ppm	parts per million
PVC	Polyvinyl chloride
QAR	Quality Assurance Representative

QC	Quality Control
REL	Recommended Exposure Limits
SAR	Supplied-Air Respirator
SOP	Standard Operating Procedure
SOW	Statement of Work
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Heatlh Plan
SZ	Support Zone
TLV	Threshold Limit Value
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers

1.0 INTRODUCTION

This Site Safety and Health Plan (SSHP) has been prepared by Environmental Chemical Corporation (ECC) in response to the Contract Number (No.) DACW2-00-D-0001, Delivery Order No. 002. In addition to all other regulatory requirements, all work shall be performed in compliance with the United States Army Corps of Engineers (USACE) "Safety and Health Manual", EM 385-1-1, and the U.S. Army Materials Command's Safety Manual, AMCR 385-100; Occupational Safety and Health Administration (OSHA) - 29 Code of Federal Regulations (CFR), Parts 1910, 1918, and 1926; FAR 52.236-13 - Accident Prevention; FAR 52.223-3 - Hazardous Materials Identification and Material Safety Data, Environmental Protection Agency's (EPA's) hazardous waste requirements (40 CFR 260-270). ECC safety policies/procedures and employee safety rules (in addition to EM 385-1-1, EPA or OSHA) shall be implemented at all times during the course of this contract.

1.1 Purpose

This SSHP has the following designated purposes:

- To delineate designated personnel roles and responsibilities related to project safety;
- To describe known and anticipated hazards and requisite hazard control measures;
- To establish injury and illness prevention procedures applicable to field operations;
- To establish chemical and medical emergency procedures in anticipation of reasonable foreseeable emergency incidents;
- To establish site operation parameters and monitoring systems that will ensure that the work creates no hazard to the public; and
- To communicate all hazard, safety, and accident prevention information to assigned and visting site personnel.

1.2 Application

The requirements established by this SSHP are mandatory, and shall apply to all ECC employees, its subcontactors, and any other personnel entering regulated work areas during active field operations. ECC shall be responsible for training all of its employees and subcontractors regarding the information and content of this SSHP prior to the commencement of work. In addition, ECC shall provide a copy of this plan to any authorized personnel who must enter the regulated work area. Finally, ECC shall maintain a copy of this SSHP available for inspection at the work site during each day of field operations.

1.3 Revisions

Changes in the scope of work operations, and/or changing or unanticipated site conditions may require modification and approval of this SSHP in order to maintain field safety in compliance with contract requirements and OSHA regulations. Any and all changes to the SSHP shall be prepared and/or

reviewed by ECC's Site Safety and Health Officer (SSHO) or Certified Industrial Hygeinist (CIH)/ Certified Safety Professional (CSP), and submitted to the Contracting Officer's Representative (COR) for approval. Work operations affected by such revisions shall not proceed unless specifically authorized by ECC's SSHO or CIH/CSP, and the COR. Only the COR may authorize operations to continue while changes to the SSHP are under review by the contracting agency.

2.0 PROJECT BACKGROUND

2.1 Site Location

Tanapag Village is situated between the West Coast Highway and Tanapag Lagoon, approximately three miles northeast of the town of Garapan. The site, which is addressed in this SSHP, is Cemetery 2. Cemetery 2 is located directly between Tanapag Village and Garapan, in Lower Base. The distance from the Navy Hill intersection in Garapan to Cemetery 2 is 1.6 miles. The location of the project area is shown in Figure 1.

Cemetery 2 site is roughly rectangular in shape and consists of approximately 2.3 acres. The area is generally flat, with an elevation of eight-feet above sea level. Soil berms, which previously surrounded the site on three sides, were removed and remediated during Phase II. The berms contained numerous capacitors, presumed to be the source of the Polychlorinated Biphenyl (PCB) contamination at the site. There is an access road entrance on the northwest side of the site, and the south side of the site is bounded by an asphalt-paved road. Soil in this area consists of a 0 to 10 centimeter (cm) layer of loose topsoil underlain by hard coral. Eleven holding cells were built on site to temporarily store PCB contaminated soil.

2.2 Site History

The purpose of the removal action is to remediate soils contaminated with PCBs that were excavated from Cemetery 2 and other selected outlying sites in the Tanapag Village. The contaminated soil is now stored in 11 holding cells at the Cemetery 2 site.

Previous work conducted (Phase II) succeeded in delineating and remediating 16 contaminated areas around Tanapag to less than 10 parts per million (ppm) PCBs. One additional area, Cemetery 2, was characterized for PCBs in preparation for remedial action in the current phase.
Since the conclusion of Phase II in August 1999, the Unites States EPA has collected soil screening samples in Tanapag, which have augmented the information obtain during Phase II. These samples have established new areas of PCB contamination previously not identified.

ECC has delineated the extent of PCB contamination over 1 ppm in Cemetery 2. ECC has also removed soils with PCBs over 1 ppm from Cemetery 2 and selected sites in Tanapag Village and temporarily stored these soils in holding cells constructed in Cemetery 2.

2.3 Site Contaminants

Previous investigations indicated the potential chemical contamination at the site are PCBs.

2.4 Scope of Work

The work to be performed under the Statement of Work (SOW) involves removal of soils from holding cells and the on-site treatment of these soils contaminated with PCBs. Soil remediation will involve the transfer of contaminated soils from the holding cells, on-site treatment by the Indirect Thermal Desorption (ITD) unit, and the final placement of the treated materials.

The scope of work for the PCB Remediation requires the following definable features of work:

- Mobilization;
- ITD Unit demo testing;
- Pre-soil removal surveys;
- Removal and transfer of contaminated soils for on-site treatment;
- On-site treatment of contaminated soils and debris by ITD and stockpiling for post-treatment confirmatory sampling;
- Final placement (backfill, grade, and compact all confirmed clean soils) into designated areas to final grade;
- Restoration of Cemetery 2 site; and
- Verification sampling of holding cell subgrade sites.

ECC will provide all necessary equipment and personnel to perform the remediation activities as defined in the Contract specifications.

3.0 ORGANIZATION AND ADMINISTRATION

3.1 General

Based on the SOW and the project work plan, ECC's project team shall consist of the Program Manager (PGM), the Project Manager (PM), the Quality Control/Site Safety and Health Officer (QC/SSHO), Project Engineer, Thermal Treatment Engineer, and Hazardous Waste Technicians and Equipment Operators. Due to the size of the team, a simple organization structure is presented in Figure 2.

3.2 Roles and Responsibilities

3.2.1 Program Manager

The PGM, David Cavagnol, will represent ECC in all aspects of its work under the project contract and shall be responsible for the following:

- Coordination of all work performed by the contractor and its subcontactors for the project;
- Serving as a liaison with the contracting agency and all other federal, state, and local agencies; and
- Ensuring that the SSHP is approved by the contracting agency prior to commencement of the field operations.

3.2.2 Corporate Safety & Health Officers

The CSP, D. Osaki, CSP, and/or M. Johnshoy, CIH, shall provide consulting services to ECC for this project. Services may include the following:

- Consult with SSHO on air monitoring data;
- Consult with SSHO for any on-site training needs through the SSHO;
- Consult with the SSHO for on-site emergencies;
- Provide on-site consultation as needed to ensure that the SSHP is fully implemented;
- Coordinate any modifications to the SSHP with the PM, the SSHO, and the COR; and
- Provide continued support for upgrading/downgrading of the level of personal protective equipment (PPE).

3.2.3 Project Manager

The PM, Kevin McCaskill, shall be responsible for the following:

- Ensuring that all employees and subcontractors assigned to the project have been informed and trained on the content in the SSHP;

- Ensuring that required PPE, air monitoring instruments, and other safety related items are provided and properly utilized for the project;
- Ensuring that all field personnel, including any subcontractor personnel, assigned to the project have satisfied all requirements for training and medical surveillance as specfied by 29 CFR 1910.120, and that records of training and medical approval are available and maintained for each person;
- Ensuring that all personnel assigned to the project have been instructed on the work plan, operations to be performed, known and potential hazards associated with the work, SSHP requirements, proper use of required PPE, specified safe work practice, proper action in the event of medical or chemical emergencies, and related site specific safety information;
- Monitoring overall safety performance of field personnel;
- Correcting any work practices and/or conditions that may result in injury and/or exposure to hazards;
- Immediately stopping ECC (including subcontractor) operations in the event of an emergency or serious hazard in order to protect personnel, the community, and the environment;
- Preparing and submitting required work progress/accident history report and air monitoring reports; and
- Maintaining all required safety and health records (i.e. OSHA 200 Logs, Accident Reports, Record of Training, Safety Inspection Reports, etc.).

3.2.4 Project Site Safety and Health Officer

The SSHO, Morris Ridenour, shall implement the SSHP and shall be responsible for the following:

- Oversight and enforcement of the SSHP;
- Assist and represent the CIH in on-site training and the continued on-site implementation and enforcement of the SSHP;
- Assignment to the site on a full-time basis for the entire duration of field activities;
- Ensure site compliance with specified safety and health requirements, Federal and OSHA regulations, and the SSHP including, but not limited to, activity hazard analysis, air monitoring, use of PPE, decontamination, site control, standard operating procedures (SOPs) used to minimize hazards, safe use of engineering controls, the emergency response plan, preparation of records by performing a daily safety and health inspection, and commenting results on the Daily Safety Inspection Log;
- Serves as a member of the QC staff on matters relating to safety and health;
- Authority to stop work in consultation with the COR if unacceptable safety and health conditions exist, and take necessary action to re-establish and maintain safe working conditions; and
- Consult with and coordinate any necessary modifications to the SSHP with the CSP/CIH, PM, and the COR.

3.2.5 Project Thermal Engineer

The Project Thermal Engineer, Allen Beaudin, will report directly to the PM. The Project Thermal Engineer duties will include the following:

- Supervise the aspects of the ITD process to ensure compliance with Contract plans and specifications as defined in the ITD Plan;
- Overall management of the ITD process; and
- Maintain communication between project management and project team members and act as the primary spokesman on ITD system issues when interfacing with external organizations.

3.2.6 Indirect Thermal Desorption Project Engineer

The ITD Project Engineer, Allen Beaudin, will report directly to the PM. The ITD Project Engineer is responsible for supervising all activities of the ITD process. He will be directly responsible for all submittals for the ITD process. He is responsible for assuring that all process engineering goals are attained. The ITD Project Engineer duties will include the following:

- Responsible for the safe and efficient operation of the ITD system;
- Responsible for insuring ITD is in compliance with all federal, state, and local laws;
- Performs all duties in accordance with a detailed knowledge of the SOPs of health/safety regulations (located at the ITD unit and the Office Trailer), permit rules, and other company requirements;
- Maintaining effective communications with the technical support personnel to guarantee the proper handling of all wastes;
- Responsible for overseeing the safety and environmental control procedures to protect health and the environment;
- Direct ITD process controls;
- Direct the oversight and monitoring of all ITD equipment;
- Maintaining accurate operating logs, waste tracking records, training records, and computer generated reports;
- Alerting the PM immediately of operating, safety, or compliance problems and participates in troubleshooting and correcting deficiencies;
- Participates in training programs and assists in training other employees;
- Updating SOPs and Safety Review Procedures;
- Observes and instructs to ensure compliance with site health, safety, and security rules relating to the ITD unit; and
- Maintaining the highest standards for housekeeping, hygiene, and the proper care and use of PPE in the ITD area.

3.2.7 Quality Control Officer

The QC Officer, Ryan Nelson, shall be responsible for establishing and ensuring compliance with site control procedures. The QC Officer shall be responsible for the following:

- Assuring that all personnel on site are acquainted with the provisions of this plan, particularly the toxicologic properties of present or suspected materials;
- Conduct soil sampling;
- Conduct air monitoring;
- Reporting equipment malfunctions and deficiencies to the PM;
- Providing QC reports to the COR; and
- Ensuring that the scope of work and specifications are followed and met.

3.2.8 Field/Subcontractor Personnel

All field/subcontractor personnel assigned to the project shall follow the requirements of the SSHP and shall be responsible for the following:

- Ensuring that field personnel shall present documentation of appropriate Hazardous, Toxic, and Radioactive Waste (HTRW) certifications;
- Ensuring that field personnel act in a responsible and cautious manner in order to prevent accident, injury and/or exposure to themselves and their co-workers at all times;
- Reporting any and all accidents, injuries, exposures, and/or near misses to the SSHO and/or the Field Supervisor;
- Attending and participating in all Tailgate Safety Meetings conducted during the project;
- Following the instructions and directions of the SSHO and PM;
- Utilizing the PPE provided and specified for use;
- Following all field safety procedures for safe work practices, buddy system, communication, site control, decontamination, evacuation, and related emergency procedures;
- Performing only those tasks they have been instructed to perform and that they believe they are trained, qualified, and capable of at the time of assignment;
- Reporting to the PM or SSHO any personal condition that they reasonably believe could affect their safety and/or the safety or co-workers (i.e. fatigue, drowsiness, severe illness, impairment by prescription medications, influence by drugs and alcohol, emotional distress, or other conditions); and
- Ensuring that no work tasks are perfomed in deviation from the SSHP and/or the initial instructions of the Field Supervisor of SSHO without the expressed authorization and additional instruction of the Field Supervisor and/or SSHO.

3.2.9 Site Visitors

Authorized site visitors, including the contracting agency and other federal or local agency personnel, may visit the site as per the project specification, but shall be responsible for the following:

- Receiving the site hazard and safety instructions from the SSHO;
- Reviewing and complying with the essential elements of the SSHP;

- Using their own, or provided, PPE to enter regulated work areas when such controls are required for entry as per the SSHP; and
- Reporting any observed unsafe act and/or condition at, or affecting, the work site to the PM.

In addition, any official visitor who seeks entry into an Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ) shall present documentation of health and safety training in compliance with OSHA 29 CFR 1910.120, medical surveillance examination and certification, and respirator fit testing. In addition, a Visitors Log will always be maintained at the site (Appendix A).

4.0 HAZARD IDENTIFICATION

The following describes the primary chemical and physical hazards associated with the tasks that will be performed. The procedures to be followed, to mitigate the hazards, are also described. Appendix B presents the Activity Hazard Analysis (AHA) for this project.

4.1 Chemical Hazards

The chemical contaminant presenting a potential occupational and environmental health hazard during the performance of work is PCBs. PCBs present a hazard through inhalation, absorption, and ingestion; the route of exposure being dust that could possibly be generated during excavation. Refer to Table 4.1 for the PCB exposure limits and characteristics. The potential toxic exposure hazard to site personnel of PCB can be expressed in Threshold Limit Values - Time Weighted Average (TLVs-TWA) as established by the American Conference of Governmental Industrial Hygienists, Permissible Exposure Limits (PEL) as mandated by OSHA, Recommended Exposure Limits (REL) as suggested by National Institute for Occupational Safety and Health (NIOSH), and by Immediately Dangerous to Life or Health (IDLH) values established by NIOSH and OSHA.

Table 4.1
Site Contaminants Exposure Limits And Characteristics

Chemical	PEL	IDLH	Route of Entry	Symptoms
PCB	0.5 mg/m^3	5 mg/m^3	Inhalation Absorption Ingestion	Irritated eyes, skin, mucous membrane; dermatitis; headache; fatigue; blurred vision; slurred speech; confusion; convulsion; chemical pneumonia; possible liver and kidney damage

Explanation:
PCB – polychlorinated biphenyl
PEL – Permissable Exposure Limits
mg/m^3 – milligrams per cubic meter
IDLH – Immediately Dangerous to Life or Health

To mitigate the chemical hazards, the following procedures will be implemented:

- Dust control through suppression by water spray and controlled procedures in equipment operation;
- Dust monitoring to ensure the effectiveness of the dust control methods;
- Proper PPE to prevent inhalation or skin exposure; and
- Control of site access.

The equipment operating procedures to be implemented include restricting vehicle speeds to 5 miles per hour and prescribing a maximum height of one-foot for dropping any soil from any machine. Dust monitoring is described in Section 6.0. PPE is discussed in Section 7.0. Site control is discussed in Section 8.0.

4.2 Physical Hazards

4.2.1 Heat Stress

The hazards of exposure to hot environments may cause a variety of illnesses including heat rash, muscle cramp, heat exhaustion, and heat stroke. Onset of signs and symptoms of exposure can occur rapidly, and without early intervention the situation may progress to a medical emergency (i.e. heat stroke). Heat stress monitoring procedures can be located in Section 4.3.

Symptoms of Heat Exhaustion
Heat exhaustion occcurs when your body cannot sweat enough to cool you off. It generally happens when you are working in hot weather. Symptoms include fatigue, weakness, dizziness, or naussea with clammy, pale, red, or flushed skin looks.

Symptoms of Heat Stroke
Heat exhaustion can sometimes lead to heat stroke. Heat stroke requires emergency treatment. It happens when your body stops sweating but the body temperature continues to rise, often to 105 degrees or higher. Symptoms include the following:

- Confusion, delirium, or unconsciousness; and
- Hot, dry, red or flushed skin, even under the armpits.

4.2.2 Safety Hazards - Heavy Equipment Operation

Heavy equipment will be used in several phases of the project including mobilization, contaminated soil excavation, soil treatment, and demobilization.

Physical hazards can arise from off-loading heavy equipment or safety equipment from tractor-trailers and locating equipment to designated areas of use. Hazards will be mitigated by personnel avoiding close proximity to moving equipment and immovable objects. Field personnel may be exposed to physical injury hazards associated with equipment operation during soil excavation. These hazards include noise, struck-by injuries, eye hazards, hand and foot injuries, and related hazards. ECC shall perform heavy equipment operation in accordance with 29 CFR 1926 and EM 385-1-1.

The primary equipment to be used includes an excavator, a backhoe, a front-end-loader, a dump truck, and a soil treatment unit. The following minimum measures shall be implemented for equipment operations to mitigate these hazards:

- The minimum required work uniform for all field personnal (i.e. Level D protection) shall be general work clothes, steel-toed construction boots [American National Standard Institue (ANSI) approved], safety goggles or glasses, work gloves, high visibility vests, hearing protection, and a hardhat (ANSI approved);
- Good housekeeping and adequate work space shall be established before operation of any equipment, and shall be maintained throughout the duration of the operation;
- Equipment shall be inspected for condition and operation prior to use. The USACE "Safety Inspection Checklist for Construction Equipment" (see Appendix C) will be implemented;
- Field personnel shall only approach operating equipment from the operators angle of view, and only after making eye contact with equipment operator; and
- Only trained and qualified persons shall be assigned to operate individual equipment.

4.2.3 Safety hazards - Vehicle Traffic

Employees may be exposed to vehicle accident hazards associated with the operation of vehicles during the project. To control these hazards, the following safety requirements will be strictly enforced:

- Seat belts shall be worn anytime a vehicle is in motion, regardless of speed or distance to be travelled. Seat belt requirements also apply to the operation of backhoe and other construction equipment;
- The basic speed law shall be followed at all times; and
- Vehicles shall never be operated at a speed that is not safe for the conditions (i.e. road surface, traffic, visibility, weather, etc.).

4.2.4 Safety hazards - Excavation Safety Procedures

Excavation procedures for the Saipan Project shall consist of excavating one to two feet below grade for sampling purposes utilizing an excavator. Excavations will be of the required width and length to maintain excavation side slopes less than or equal to the maximum alowable side slopes based on the angle of repose of the excavated materials. All excavation work shall be performed in accordance with 29 CFR 1926 Subpart P - Excavations (1926.650 - 196.652) and USACE requirements (EM-385-1-1).

A primary initial hazard with excavation operations is contact with underground utilities including electrical, gas, water/sewer, and chemical pipelines. To mitigate these hazards, the Field Superviosr shall take the following action during excavation operations:

- Verify the exact location of each authorized excavation with the client representative and/or on-site official prior to breaking ground;
- Make every attempt to determine the presence or absence of any underground utilities in the region by contacting the local utility companies; and

- Arrange for the deactiviation of utilities whenever possible and appropriate for the circumstances.

Surface encumbrances (trees, boulder, poles) that are found that may create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.
An additional primary hazard associated with excavations is exposure to the open, excavated area, resulting in falls and/or collapse. To mitigate these hazards, the following safety actions shall be undertaken:

- Excavated areas shall be cleary marked and secured with barricades and caution tapes to prevent unauthorized and/or accidental entry into work areas;
- Necessary foot and vehicle traffic shall be directed away from and around the excavation work area, and the routes clearly marked;
- When possible, the sides of the excavations shall be sloped or benched to at least a 45 degree angle; and
- No person shall be allowed to enter any excavation greater than four feet deep without the proper shoring/sloping and site control requirements.

4.3 Biological Hazards

Avoid contact with rodents because they frequently are hosts for the Hanta Virus and to fleas which carry typhus and the plague.

Avoid contact with or inhaling dust associated with rodent feces. Cleanup shall be conducted using a respirator with P100 cartridges, gloves, and a bleach solution to wet down the fecal material. For proper disposal, place fecal material or dead rodents in a sealed bag.
Potential biological hazards that may be encountered during operation of the above tasks include insect bites or stings. It is important that one fully decontaminates prior to leaving the site. Please refer to Section 8.2 for decontamination procedures. Apply an insect repellent containing DEET every few hours when in insect and spider infested areas. Wash DEET off when you come out of the work zones. It is also recommended that one avoid wearing perfumes and colognes when outside.

4.4 Unexploded Ordnance

If unexploded ordnance are encountered during field activities, personnel shall evacuate the area and report findings to the USACE. USACE will contact the Saipan Emergency Management Office. Personnel are not to disturb unexploded ordnance. The location of the unexploded ordnane will be marked with a flag. A detailed written report, providing a description of the ordnance, its location, and visual condition shall be prepared and submitted to the PM, SSHO, and the USACE.

4.5 Brush and Debris Cutting/Removal

Weedwackers and chainsaws will be used for brush and debris cutting/removal. Cuts and dismemberment from sharp instruments is one of the potential hazards associated with brush cutting/removal activities. Operators, and non-operators in close proximity, should donn appropriate protective clothing (leather gloves, eye protection, and steel toed boots). Non-operators should stand clear of operators' working area. Water mist will be utilized to prevent dust generation during brush and debris cutting/removal.

5.0 GENERAL SAFETY AND HEALTH PROGRAM

5.1 Safety and Health Training

All field personnel, including subcontractor personnel, assigned to this project shall have satisfied the training requirements, medical surveillance requirements, and respirator fit testing requirements of this SSHP, 29 CFR 1910.2120 (e), 29 CFR 1926.65, and USACE EM 385-1-1.

- OSHA 40-hour Hazardous Waste Operations Training (HAZWOPER) with a minimum of 3 days of supervised hazardous waste work - all personnel who enter the EZ;
- OSHA 8-Hour Refresher Training - all personnel who completed OSHA 40-Hour training more than 12 months previously; and
- OSHA 8-hour Supervisor Training- required for the Field Supervisor and any other field personnel assigned supervisor duties during the project.

Copies of training certifications for ECC personnel shall be filed at the project site by the SSHO. In addition, the following training requirements shall also be satisfied:

- Employees must be provided safety and health indoctrination and training to enable them to perform their work in a safe manner;
- This training shall be documented as required by EM 385-1-1 section 01.B.02;
- Field personnel assigned to the project shall be informed of, and trained on, the content and application of the SSHP; and
- Field personnel will receive a copy of the SSHP and sign a Site-Specific Safety and Health Plan Compliance Agreement upon completing this training (see Appendix D).

Periodic on-site training shall be provided by the SSHO on a weekly basis when personnel are assigned to work at a site during the following week and prior to each change in operations. All required training shall be documented. ECC shall maintain copies of training certificates and records of training forms. Copies of training records shall be maintained on-site during the project. ECC training logs shall be completed by the SSHO and submitted to the COR upon request and at the completion of the work. These logs shall be used to document all on-site training(i.e. Bloodborne Pathogens, PPE, activity hazard analysis and work task, review of safety discrepancies and accidents, and the results of air monitoring data). The format to be used shall have the following: date, employees in attendance, visitors in attendance, signatures, description of training activity and/or topic covered, equipment utilized, and signature of instructor.

5.2 Medical Surveillance

All ECC employees have received an extensive pre-employement medical screening in accordance with OSHA standards. Personnel also receive periodic follow-up examinations when appropriate. All

medical monitoring information is properly documented and maintained in each employee's personnel file.

All personnel involved in this project will be provided with medical examinations prior to participation in on-site operations, at the conclusion of the project, and/or at 12 month intervals during the progress of the operations. Examinations may be repeated as indicated by substanderd performance or evidence of particular stress or chemical exposure, injury or loss time illness on the part of a worker, and if employement is terminated for an individual before completion of the contract.

The medical surveillance program is established to ensure that personnel are capable of performing their assigned activities and the health of employees is not compromised by potential exposure to chemical or physical agents found at work sites. This program is designed to support and monitor the effectiveness of the primary Heatlh and Safety goal of controlling worker exposure to hazardous materials.

A medical surveillance program is required for employees who are or may be exposed to substances above permissible levels, required to wear a respirator, and who are exposed to over permissible levels in accidents or emergency situations.

All employees designated to participate in this program are required to participate in the medical surveillance program as a condition of employment. All employees who enter the EZ or CRZ must participate in the medical surveillance program. Other personnel may be monitored on a case-by-case basis.

ECC personnel assigned to this project are required to obtain the following medical treatment along with their baseline physical:

- Usual oral polio booster for measles, mumps, and rubella;
- Dio-tetanus booster; and
- PCB blood sampling.

ECC's Corporate Health and Safety Officer is responsible for providing the physician with the following:

- A copy of the OSHA regulation relating to hazardous waste site worker and its appendices (29 CFR 1910.120);
- Description of employees' duties as they relate to exposure;
- Description of the PPE to be used;
- Information from previous examinations which may not be readily available to the physician;
- A copy of the ECC Medical Program; and
- A statement that the employee has been informed and advised of examination results.

Documentation of employee participation in the medial surveillance program and physician determination that the employees can wear PPE and respirators will be placed in the employee's personal file. A physician's opinion on any recommended limitations for the employee's assigned work will be given.

5.3 Hazard Communication

This program is in compliance with 29 CFR 1910.1200 titled Hazard Communication "Right to Know". This written program will be readily available at the ECC project site.

The purpose of the Hazard Communication Program is to inform and train ECC employees about the potenial hazards of the materials that they may be exposed to while performing their work duties. ECC will provide information about chemical hazards and their control through labeling, chemical inventory, Material Safety Data Sheets (MSDS) (Appendix E), and training programs as detailed in this written Hazard Communication Program. This program applies to all known hazardous substances in the workplace that employees may be exposed to under normal conditions or use in a foreseeable emergency resulting from workplace operations. Emergencies could include equipment failure, rupture of containers, etc.

The program does not apply to:

- Hazardous Waste (as defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976);
- Tobacco and tobacco products;
- Wood and wood products;
- Foods, drugs, or cosmetics intended for personal consumption by employees while in the work place;
- Consumer products packaged for distribution to and use by, the general public, provided that employee exposure to the product is not significantly greater than the consumer exposure occurring during the principle consumer use of the product.

5.3.1 Hazard Determination

Manufacturers, distributors, and importers of chemicals are required to assess the physical and health hazards associated with each chemical they manufacture or import. This information must be conveyed to the employer by means of MSDS and container labels. Hazardous substances are any material listed in any one or more of the following lists:

- 29 CFR Part 1910, Subpart Z, Toxic & Hazardous Substances (OSHA);
- Threshold Limit Values, American Conference of Government Industrial Hygeinists (ACGIH);
- National Toxicology Program (NTP);
- International Agency for Research on Cancer (IARC);
- Any scientific study providing evidence that a material has physical or health hazards;
- Mixture containing 1% or more of a hazardous substance; or

- Mixtures containing 0.1% or more of a carcinogen.

Consumer products used under normal conditions are exempt from federal hazard communications regulations.

5.3.2 Material Safety Data Sheets

Manufacturers and importers of chemicals are required to develop a MSDS for each chemical based upon the information they obtained during the hazard determination process. A copy of the MSDS supplied by the manufacturer or distributor of the chemical shall be kept at each ECC project site and office. The Corporate Health & Safety Manager, Chemcial Hygiene Officer (Cincinnati Lab), or Project SSHO will be responsible for obtaining an MSDS for all chemicals present at each site or office. These individuals shall review incoming MSDS for new and important health and safety information. All supervisors and employees will be informed of the new MSDS within 30 days of the SSHO receiving the new MSDS from the manufacturer.

All MSDS will be reviewed for completeness by the ECC SSHO. If an MSDS is missing, a new MSDS shall be requested in writing from the manufacturer within 7 days.

The MSDS must contain the following information: chemical identity; chemical ingredients; physical and chemical characteristics; fire and explosion hazard data; reactivity hazard data; health hazard data; control and protective measures; precautions for safely handling, and special hazards.

Upon reveiwing the MSDS from the first shipment of a chemical, the original will be sent to the SSHO. The MSDS will be reviewed by the SSHO and will be placed in the MSDS binder. ECC will not accept chemicals from the manufacturer or distributor unless a copy of the MSDS has already been obtained from a previous shipment or the shipment is accompanied by an MSDS. MSDSs are available for all employees and contractors for review during each work shift. MSDSs shall be kept in a conspicuous location at all times.

5.3.3 Labeling

ECC will not accept or release hazardous chemicals for use unless the original container is clearly labeled with at least the following information: identity of the hazardous chemicals(s); appropriate hazard warning statement; and name and address of the manufacturer. If the hazardous chemical is transferred to a secondary container, the secondary container must be clearly labeled with at least the following information: identity of the hazardous chemical and the appropriate hazard warning statement.

All labels must be legible, in English, and prominently displayed on the container. Labels shall not be defaced or removed unless the container is immediately marked with the required information. Unlabeled chemical containers should be immedidately reported to the area supervisor or the SSHO. The name of the material that appears on the manufacturer's label shall be the same as the name that appears in the area chemical inventory as well as the MSDS. Regulation 29 CFR 1910.1200 does not

require labeling of the following substances: pesticides; distilled spirits (beverage alcohols) for non-industrial use; and any consumer product.

5.3.4 Employee Training

Employees shall be trained on the hazardous substances in thier work area at the time of the initial assignment, whenever a new hazard is introduced into thier area, and within 30 days of the employer receiving an updated MSDS containing new information indicating significant increased risk or chages in the use of PPE.

ECC employees will be trained in the following:

- Overview of the Hazard Communication regulation (29 CFR 1910,1200);
- Operations involving hazardous chemicals in their work area;
- Location and availability of the MSDSs and written hazard communication program;
- How to read an MSDS and container labels;
- Physical and health effects of hazardous chemicals and measures to be taken by the employee to protect themselves;
- Emergency and first aid procedures to follow in case of exposure to hazardous chemicals; and
- Use of engineering controls, PPE, and work practices to prevent or lessen exposure to hazardous chemicals.

The employees shall be informed of their rights to:

- Personally receive information of the hazardous substances to which they may be exposed;
- Have their physician receive information regarding hazardous substances to which they may be exposed; and
- Incur no disciplinary action, including discharge or discrimination, against the employee due to the employee's exercise of the rights given to them under 29 CFR 1910.1200 and this written hazard communiction program.

5.3.5 Chemical Inventory

Each ECC office and project site containing hazardous chemicals must have a Chemical Inventory list. The inventory shall be placed with the MSDS binder in a conspicuous location at all times. An MSDS shall be available for each chemical listed in the inventory. The SSHO is responsible for updating the chemical inventory list whenever a new chemical is introduced into the area or a chemical is deleted from the area.

5.4 Respiratory Protection Program

ECC maintains a Respiratory Protection Program for its employees. This program includes written procedures, training, medical surveillance, fit testing, maintenance of equipment, and other components.

All field personnel assigned to this project shall be covered under this program (or an equivalent program for subcontractor personnel). ECC's Respiratory Protection Program is in compliance with 29 CFR 1910.134, ANSI Z88.2-1992, and ANSI Z88.6 Only NIOSH approved respiratory protection equipment will be used on this project.

In the event that air purifying respirators are donned during certain activities, ECC's Respiratory Protection Program shall be enforced. There a two general categories of respiratory protective devices, air purifying respirators, (APRs) and supplied-air respirators (SARs).

5.4.1 Air-Purifying Respirators

Respiratory protection shall be worn when engineering controls or administrative controls cannot be successfully implemented in order to control a contaminant which has exceeded its 8-Hour PEL under OSHA guidelines. Respiratory protection shall include the use of NIOSH-approved half-face air-purifying respirators equipped with P100 particulate filters.

APR Limitations
The following limitations apply to the use of APR:

- The odor threshold must be lower than the contaminants exposure limit (TLV/PEL);
- APRs cannot be worn in oxygen deficient atmospheres (less than 19.5 % oxygen); and
- APRs cannot be worn in areas where the contaminant has reached IDLH conditions.

Protection Factor
APR respirators provide different protection factors as listed below:

APR Respirator Type	Protection Factor
Half-face (dust, gas, or vapor)	10X
Full-Face	50X

Maximum Protection = Protection Factor x TLV/PEL (example: the maximum concentration of ammonia in which a half-face respirator could be worn is 250 ppm (Protection Factor = 10X x TLV = 25 ppm).

5.4.2 Supplied-Air Respirators

If site conditions warrant the use of SARs (e.g. oxygen deficiency), ECC will ensure that personnel receive breathing gases of high purity. ECC shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen for respiration accords with the following specifications:

- Compressed and liquid oxygen shall meet the United States Pharmacopeia requirements for medical air breathing oxygen;

- Compressed breathing air shall meet at least the requirements of Grade D breathing air described in ANSI/Comprssed Gas Association Commodity Specification for Air, G-7.2-1989;
- Compressed oxygen shall not be used in atmoshpere-supplying respirators that have previously used compressed air;
- Oxygen concentrations greater than 23.5% shall only be used in equipment designed for oxygen service or distribution;
- Cylinders used to supply breathing air to respirators shall meet the requirements prescirbed in 49 CFR parts 173 and 178;
- Purchased breathing air shall have a certificate of analysis from the supplier that the air meets the requirements for Grade D breathing air; and
- Moisture content in the cylinder shall not exceed a dew point of -50 degress Fahrenheit at 1 atmosphere pressure.

ECC will ensure that any air compressor used in SAR systems meet the following requirements:

- Compressors used to supply breathing air to respirators shall be constructed and situated as to prevent entry of contaminated air into the air-supply system;
- Moisture content in the compressor shall be minimized so that the dew point at 1 atmosphere pressue is 10 degrees Farenhiet (F) below the ambient temperature;
- Compressor shall have a tag containing the most recent change data and the signature of the person authroized by ECC to perform the change. The tag shall be maintained at the compressor;
- ECC shall ensure that the carbon monoxide levels in the breathing air do not exeed 10 ppm for compressors that are not oil-lubricated;
- A high-temperature and/or carbon monixide alarm shall be used to monitor carbon monoxide levels for oil-lubricated compressors. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monixide in the air from exceeding 10 ppm;
- Breathing air couplings shall be incompatible with outlets for non-respirable work-site air or other gas systems. No asphyxiating substance shall be introduced into breating air lines; and
- Breathing gas containers shall be marked in accordance with NIOSH respirator certification standard, 42 CFR Part 84.

5.4.3 Donning Procedures

Make sure you have the following:

- Your assigned respirator;
- Correct cartridge that has not expired on APRs;
- Put on the respirator chin first and then tighten the straps;
- Fit check the seal by completing the following:

- Positive fit check - Cover exhalation valve and blow out. Mask should inflate on the face without any leaks occurring; and
- Negative fit check - Cover the inhalation valves and inhale. Mask should deflate inwards towards the face.

Inspect the respirator by completing the following:

- Check the cartridge seal on APRs;
- Check the straps;
- Check the face piece for cracks and deformity; and
- Check the exhalation and inhalation valves.

For SARs only:

- Check for breaks or kinks in air supply hoses and end fitting attachments;
- Check connections for tightness;
- Check regulators and valves for proper stettings; and
- Check for correct operation of air purifying elements and carbon monixide or high temperature alarms.

For APRs, replace cartridge when the following occurs:

- Breathing becomes difficult;
- Chemical can be smelled or tasted; or
- Indicator strip changes color.

5.4.4 Full Sanitation Procedures

Full sanitation procedures are listed as follows:

- Take the respirator cartridges or hose off on APRs;
- Fill container with lukewarm water;
- Add diluted chlorine bleach;
- Wash the respirator in the soution and then soak for 5 minutes;
- Rinse the respirator with cold water; and
- Place on a towel and allow to air dry.

If the respirator is used daily then full sanitation is usually done weekly. If the respirator is used weekly then full sanitation is usually done monthly. If the respirator is used monthly then full sanitation is usually done quarterly.

5.4.5 Storage

When not in use, respiratory protective equipment shall be stored in a Ziplock® bag or carrying case to protect it against dust or damaging chemicals, sunlight or extreme temperatures, and excessive moisture.

Environmental conditions in the work area shall be monitored on a regular basis to detect increases in exposure concentrations and introduction of other hazardous substances. Each respirator shall be individually assigned and not interchanged among employees.

5.4.6 Respirator Fit-Testing

Each employee will be either quantitatively or qualitatively fit-tested annually, at a minimum, with the respirator(s) they are issued to ensure proper protection. Fit testing shall be performed using irritant smoke tubes, in accordance with ANSI Z88.2 (1992), 29 CFR 1926.1127, and 29 CFR 1910.134. Proof of respirator fit testing and training shall be maintained on site during all work activities. On-site personnel unable to pass a respirator fit test shall not be permitted to perform work requiring a respirator.

6.0 EXPOSURE MONITORING PROGRAM

Based on the chemical and physical hazards anticipated to be encountered by the removal of PCB-contaminated soils from the holding cells and the transfer of these materials to the ITD, appropriate exposure monitoring will include dust monitoring with personal particulate monitors and air sampling pumps. Organic monitoring for PCBs is not appropriate in this case because PCBs are relatively non-volatile. PCBs present a greater skin contact hazard and inhalation hazard via absorption of PCBs to dust particles. Dust action levels will be extremely conservative to reflect this possibility. The implementation of monitoring of visible dust, the use of respiratory protection, and proper decontamination will minimize the exposure to field personnel.

6.1 Dust Control Plan

The use of heavy equipment during the excavation activities and the stockpiling of soils from the ITD treatment system at the Cemetery 2 Site may create dust emissions. ECC personnel will implement the following dust abatement measures to preclude the spread of dust during site activities:

- Dust producing operations, such as excavation, transportation of fine materials, and demolition, will be curtailed when wind speeds exceed 15 mph;
- A water-based dust suppressant will be sprayed during dust producing operations to minimize the creation and dispersion of dust;
- Trucks carrying rubble and contaminated debris off-site will be covered and sealed to control dust release and have a double positive-locking mechanism on the tailgates; and
- Speeds on haul roads will be at a set rate to minimize the generation of dust; if significant levels of dust are generated on haul roadsthen the roads will be sprayed with water or a water-based dust suppressant mist.

The effectiveness of the dust control will be evaluated and monitored visually. In addition, a MiniRam or a similar portable aerosol monitor will be used to monitor dust and all readings shall be recorded in a log book. Dust monitoring will take place upwind and downwind of operations periodically during each operation (daily) that will generate dust. The SSHO will be responsible for ensuring that dust control practices are being utilized effectively and will regularly monitor the air for particulates at the site boundary.

During work activities, dust control will be a top priority to protect personnel and members of the public from contaminant exposure. The main dust generating activities are: excavation, soil processing, stockpiling of the treated material, and hauling.

6.1.1 Soil Excavation Phase

Dust abatement measures (i.e., water spraying) will be implemented to preclude the spread of dust whenever necessary. Soil will be kept damp, but not wet. There will be one water truck on-site for the

purpose of dust suppression. To avoid the generation of clouds of dust, the maximum drop height between the excavator bucket and truck beds will be kept to a minimum (approximately one foot). The effectiveness of the dust control activities will be evaluated and monitored visually and with a MiniRam. During non-operating hours, pre-processing soil stockpiles will be covered.

6.1.2 Soil Processing Phase

During soil pre-processing, dust may occur as the soil is processed through the screening plant for particle size reduction (2-inch minus) and stockpiled. After treatment in the ITD, the soil will be sprayed using the scrubber water. The stockpiled soil will be covered, before and after treatment, to prevent the infiltration of precipitation and wind blown releases of soil and dust.

Dust monitoring during soil processing operations will consist of airborne particulate monitoring with a MiniRam. Airborne particulates with concentrations above 1 milligram per cubic meter (mg/m^3) require the institution of dust suppression measures, as does the presence of visible dust emissions during soil processing.

6.1.3 Site Management

The soil surface on haul roads and on other areas disturbed by site activities may be treated with a dust palliative as necessary. No visible dust emissions will be permitted.

6.2 Noise

All field personnel shall be required to wear hearing protective devices having a Noise Reduction Rating (NRR) of 28 or greater in all active air operation areas, when using pneumatically driven equipment, or when directed by the SSHO.

6.3 Heat Stress Monitoring

To control exposure to heat stress hazard, monitoring will commence when personnel are required to wear PPE, including disposable coveralls, in ambient conditions exceeding 70 °F or when wearing standard work uniforms (Level D) in ambient conditions exceeding 85 °F.

The SSHO will keep a heat stress log and the following safety procedures shall be implemented to control the exposure to heat stress during any site activity:

- All employees shall be monitored for heat stress;
- Potable drinking water shall be available at all times;
- Frequent rest breaks shall be taken;
- A buddy system shall be utilized;
- Shade (i.e. fixed or portable canapoy) shall be provided;
- Employees shall be encouraged to eat a normal diet; and

- Employees shall be encouraged to refrain from consuming diuretics, including caffeine from coffee and tea beverages, or any form of alcohol. (Note: consumption of alcohol is prohibited during work hours).

Heat stress exposure shall be evaluated by monitoring heart rate. The radial pulse shall be taken for 30 seconds immediately upon beginning to rest. This rate shall be multiplied by two to determine the heart rate at initial rest. This rate should be not exceed 110 beats per minute (bpm). After three minutes of rest the heart rate shall be taken again. The difference between the initial and third minute heart rate should be greater than 100 bpm. If the initial rate exceeds 110 bpm OR the difference between the initial and third minute rates is less than 10 bpm, then the work period shall be shortened by 33 percent and the rest period increased by 33 percent. Body temperature monitoring will also be monitored.

6.4 Personnel Air Monitoring

ECC will collect and analyze eight hour Time-Weighted Average Air Monitoring (TWA) samples representative of personnel exposures for all activities where personnel may be exposed to potentially hazardous air contaminants. Samples will be collected in the breathing zone of personnel who can be expected to have the highest exposure or maximum risk. Additional personnel sampling will be required if the monitoring results indicate maximum risk personnel are at or above PELs. Initially, personnel monitoring will be done on a daily basis with a verbal twenty-four hour turnaround of analytical results for each new phase of work, or when work begins in a new area of the site. Personnel sampling will be conducted for a minimum of two days at each operation area. The following table summarizes the personnel air monitoring sampling methods.

Table 6.1
Evaluation Parameters for Air Monitoring

Analyte	Method	Sampling Rate
PCBs	NIOSH 5503	2 liters/minute for 8 hours

Explanation:
PCB – polychlorinated biphenyl
NIOSH – Ntaional Institute for Occupational Safety and Health

After personnel exposure for a given area is characterized, ECC may continue to collect TWA samples for maximum risk personnel. At a minimum, one sample will be analyzed each week for each operation and/or work area. Samples will be collected any time action levels are exceeded or whenever an upgrade/downgrade in a level of protection occurs. Sample collection and analysis will continue until the SSHO and the COR determine exposures are adequately characterized and enough information exists to adequately protect on-site personnel with information obtained from the real-time instrumentation.

SSHO may reduce the monitoring frequency if analytical results indicate a hazard does not exist and the COR concurs. However, analysis of personnel air monitoring samples will be performed no less than once a week for each on-site operation for the duration of the project.

6.5 Work Area Monitoring

ECC will excavate only one holding cell at a time; therefore, air monitoring will be limited to the excavation that is currently in progress and at the ITD unit. A minimum of one sample per week will be analyzed from each active work area. Samples will be collected at breathing zone height and in locations representative of the work area. ECC will provide verbal analytical results with interpretation of the data and the recommendation of the SSHO, if any, to the COR within forty-eight hours of sampling. The results will be attached to the Daily Quality Control Report. A written report with three (3) copies will be provided to the COR within 24 hours of receiving the laboratory results. The TWA samples will be collected by using Personnel Air Sampling Pumps manufactured by Davis Instruments.

6.6 Perimeter Air Monitoring

Three portable air monitoring units will be used for perimeter air monitoring and sampling. One will be in direct line with the prevailing winds of the day and the remaining units will be downwind of the ITD.

Each day the upwind perimeter monitoring station and its downwind counterpart will be located according to the current wind direction. For days with relatively stable wind conditions, the second downwind unit will be placed +15 degrees of the upwind station and the third downwind unit will be placed -15 degrees of the upwind unit. Each downwind station will be located along the downwind perimeter fence. On days of unstable air (wind conditions) the two units at +/- 15 degrees will be extended to +/- 30 degrees of the upwind unit. When the prevailing wind directions change the monitoring stations will be relocated accordingly. All pumps will be located at +5 to -15 feet of original grade, approximately at 6 feet on chain link fences.

Perimeter TWA sampling for PCBs will be conducted according to NIOSH sampling and analytical method, NIOSH 5503. Since the air sampling pumps are portable, the air sampling stations will be moved daily to accommodate any changes in prevailing wind directions. Because the sampling media material is self-contained, cross contamination due to handling is minimal.

At a minimum, one sample per station representing the highest action level value as obtained from the real-time air monitoring program, will be analyzed each week for PCB's. In addition, if the real-time program indicates elevated levels at the perimeter locations, then those TWA samples collect for that day will be sampled.

ECC will collect a duplicate sample for PCBs at one of the monitoring locations on a daily basis. These samples will be provided to the COR for analysis by a laboratory of their choice. In addition, ECC will comply with QA/QC requirements for air monitoring sampling as specified in Section 01450. ECC will

provided verbal analytical results with interpretation of the data to the COR or designated representative for PCBs within 48 hours of sampling. The results will be attached to the Daily Quality Control Report and a written report with three (3) copies will be provided to the COR within 24 hours of receipt of the laboratory results. All applicable permits will be acquired and present on-site prior to initial operation of the ITD.

7.0 PERSONAL PROTECTION AND SAFETY

7.1 General Site Safety Requirements

The following are safe work practices which shall apply to this project:

- Eating, drinking, use of gum or tobacco products, or the appying of cosmetics shall only be allowed in designated areas in the Support Zone (SZ);
- Smoking is not allowed in government buildings and near sources of ignition. "No Smoking" signs will be posted at the entrances to the EZs and the CRZs. Areas will be marked where smoking is permitted;
- Personnel shall wash their hands, face, and any exposed skin when completing decontamination, before eating, drinking or using tobacco products, and at the end of each shift;
- Personnel shall participate in Tailgate Safety Meetings;
- Personnel shall continually observe their work location and be alert to changes in the environment that may affect safety;
- Personnel shall plan and prioritize their tasks prior to donning PPE and entering a designated EZ;
- Personnel shall only enter regulated work areas when instructed by the Field Supervisor, and shall only enter through designated control points;
- Personnel shall act to avoid direct contact with contamiantion by not purposefully walking, touching, or contacting any obviously contaminated surfaces. Instruments and tools shall not be placed directly on the ground;
- Personnel shall report any accident, near miss, or unusual situations to the SSHO and/or Field Supervior immediately;
- Personnel shall use the PPE provided and as instructed by the Field Supervisor;
- Personnel shall not wear or carry personal items (i.e. jewelry, watches, gum, tobacco products, etc.) into regulated work area;
- Personnel shall avoid hand-to-mouth or hand-to-face activities;
- All instruments and safety equipment shall be inspected prior to use;
- All vehicle and construction equipment shall be inspected prior to use;
- The number of personnel in a work area shall be minimized in order to reduce potential exposures;
- The buddy system should be used for all personnel entering an EZ;
- Personnel working together (the buddy system) shall continually be aware of their partner, and shall make integrity checks of the partner;
- Personnel shall work purposefully and as a team;
- Personnel shall work within their own physical and mental limits;
- Personnel shall take adequate rest breaks and replace body fluids (water and electrolyte) continuously;

- Personnel shall at all times follow the instructions of the Field Supervisor;
- Personnel shall not deviate from the SSHP or the instruction of the Field Supervisor;
- Personnel shall avoid rushing and/or taking short cuts;
- All waste generated from decontamination procedures shall be handled and disposed of as per the contract requirements. No waste shall be disposed of without the direction of the Field Supervisor; and
- Personnel will do visual checks on machinery (filling out a checklist on heavy machinery) and equipment prior to its use.

7.2 Levels of Protection

PPE is required for project work. Hard hats, protective footwear, and protective eyewear are required for all construction type work. Eyewear and hearing protection, as well as gloves, shall be listed on the Activity Hazard Analysis and worn when required. Employees shall receive training on the use of PPE.

The purpose of PPE and clothing is to isolate individuals from chemical and physical hazards. ECC shall provide PPE (disposable coveralls, work gloves, safety glasses, and hard hats) to authorized site visitors who require access to the EZ. Levels of protection will be selected or deemed necessary by the PM or the SSHO. Level D will be worn as a minimum for all site activities at this project site. The equipment list given below includes information on Level D and Modified Level D protection.

OSHA Level D: This is primarily a work uniform. Level D is the basic work uniform that will be used. It provides only minimul protection.

- Hard hat;
- Boots - chemical resistant, steel toe, and shank (NSI Z41 - 1983, Safety Toe Footwear Classificiation 75). Boots shall be equipped with deep traction sole;
- Gloves - Chemical (polyvinyl chloride [PVC], Neoprene, Nitrile);
- Safety Glasses or goggles; and
- Hard Hat (ANSI Z89.1-1986M Class A, B, and C).

OSHA Modified Level D: Same as Level D with an increase in protection level for splash hazards. No air purifying respirator.

- Disposable Coveralls;
- Boots - chemical resistant, steel toe, and shank (NSI Z41 - 1983, Safety Toe Footwear Classificiation 75). Boots shall be equipped with deep traction sole;
- Gloves - Chemical (PVC, Neoprene, Nitrile);
- Safety Glasses or goggles; and
- Hard Hat (ANSI Z89.1-1986M Class A, B, and C).

OSHA Level C: This is to be selected when the type of airborne substance is known, of a measured concentration, criteria for using air purifying respiratory met, and skin and eye exposure unlikely. Level C will be worn during excavation work. Please note that all the requirements for hard hat, coveralls, and boots apply here.

- Full-face air purifying respirator with P100 particulate filters;
- Breathable disposable coveralls;
- Neoprene outer gloves;
- Cotton inner gloves;
- Hard hat with face shield;
- Steel-toed rubber boots;
- Taped wrist and ankle joints;
- Chemical goggles (where applicable);
- Hearing protection (where applicable); and
- Safety glasses (where applicable).

Protective clothing material must be compatible with the identified hazardous substances released. In an unknown situation, the material providing the highest overall protection will be utilized.

OSHA Level B: This level of protection should be used when the type and atmospheric concentrations of substances have been identified or are estimated to be within tolerance parameters of PPE. Level B requires a high level of respiratory protection.

- Polytyvek or saranex suit;
- Boots - chemical resistant, steel toe, and shank (NSI Z41 - 1983, Safety Toe Footwear Classificiation 75). Boots shall be equipped with deep traction sole;
- Gloves - Chemical (PVC, Neoprene, Nitrile);
- Safety Glasses or goggles;
- Hard Hat (ANSI Z89.1-1986M Class A, B, and C); and
- Supplied air.

7.3 PPE Inspection Program

Regular inspection of PPE, together with respiratory protective equipment, shall be performed including the following:

- Inspecting all equipment prior to use;
- Discarding all disposable items daily; and
- Cleaning and inspecting all reusable PPE daily.

7.4 Care of Equipment

PPE offers a high degree of protection, yet the equipment must be maintained and inspected on a regular basis. Gloves and full body coveralls will be inspected and replaced promptly if a tear develops.

7.5 Tasks Covered

The wearing of company-approved hard hats (ANSI Z89.1 approved) on job sites is mandatory for all tasks where there is an overhead safety consideration. Appropriate work clothing will be worn at all times to minimize the hazards from work. The initial minimum PPE requirements for each major task and operation are listed below:

Task/Operation	*Initial Level of Protection*
Mobilization	Level D
Site Preparation	Modified Level D
Work Zone Construction (Treatment System)	Level C
Excavation of soil (cells)	Level C
Loading Operations	Level C
Operate On-site Thermal Treatment System	Modified Level D
Decontamination	Level C
Final Soil Placement	Modified Level D

7.6 Equipment Selection

The SSHO will be in charge of equipment selection and inventory. The level of protection may be upgraded or downgraded by the SSHO and/or CIH as conditions change at the site. Decisions for downgrading PPE requirements shall be approved by the COR prior to implementation. The COR should be notified by the SSHO of decisions for upgrading PPE requirements, but COR approval does not have to be required prior to implementation.

Reasons to upgrade include any changes that occur in a work task that will increase contact or potential contact with hazardous materials, when an action level is detected during monitoring, or when a request of the individual employee has been made.

Reasons to downgrade includes any new information that indicates the situation is less hazardous than originally believed, any changes in site conditions that decreases the hazards, or monitoring or lab analysis data support a decision to downgrade.

Three clean sets of PPE and Level D clothing, as required for entry into the EZ and/or CRZ, shall be available for Government personnel. The PPE shall be clean and marked "FOR USE BY GOVERNMENT PERSONNEL ONLY".

Table 7.1 delineates the exposure monitoring action levels.

Table 7.1
Exposure Monitoring Action Table

READING	LOCATION	ACTION
5 mg/m^3 (Particulate) * 0.5 mg/m^3 (Lab Sample)	Cemetery 2	Stop work, report to COR
1 mg/m^3 (Particulate) * 0.1 mg/m^3 (Lab Sample)	Tanapag Village	Stop Work, report to COR

Explanation:
COR - Contracting Officer Representative
mg/m^3 – milligrams per cubic meter]
* the particulate action levels may be revised when laboratory results are received.

8.0 STANDARD OPERATING SAFETY PROCEDURES

The field safety requirements and procedures applicable to this project include site control, decontamination, sanitation, safety meetings, accident report and investigation, safety inspections, housekeeping, and related items.

8.1 Site Control

Site control procedures for this project shall include the establishment of work zones at each work location, providing site security to warn of unauthorized access and to secure work locations between shifts.

An EZ will be established around the immediate work area and shall be clearly marked by a combination of traffic cones, barricades, and/or high visibility barrier tape. The EZ shall mark the area where direct handling operations are occurring and where field personnel may be exposed to chemical or physical hazards. Entry into the EZ shall be regulated by the SSHO and the Field Supervisor. No person shall enter an EZ if they are not wearing the required PPE. All personnel exiting an EZ must pass through the CRZ, following the required decontamination procedures. The CRZ is the transition area between the contaminated area and the clean area. The zone is designed to reduce the probabilty that the clean SZ will become contaminated or affected by other site hazards.

At the commencement of operations and periodically though the day, the boundary between the EZ and the SZ shall be monitored using the particulate monitors. The SZ shall be positioned upwind and up gradient from the work area. Sign-in sheets will be placed at the entrance to the CRZ and the EZ and maintained by the SSHO.

The size and shape of the EZ shall be based on known and anticipated hazards, type of operation being performed, physical and topographical features, potential for site emergencies affecting surrounding areas, etc. Prior to the beginning of each days operations, the SSHO shall observe site conditions and determine the location and boundaries of the EZ. This work zone shall be reasonably large enough to accommodate equipment operations (i.e. 25 to 50 feet in all directions). The SSHO shall re-evaluate the location and boundaries of the EZ as frequently as necessary, each day, in order to ensure that the EZ incorporates all areas as described immediately above.

All work zones shall be established daily before beginning operations. Site control requirements shall be reviewed during daily Tailgate Safety Meetings. A copy of the site map showing any adjustments to the work zone boundary shall be attached to the daily Tailgate Safety Meeting form (Appendix F) whenever work zones are adjusted based on site conditions.

Site security shall be established by clearly marking all work zones at all possible locations of entry by unauthorized personnel in order to minimize and prevent public exposure to hazards created by site

activities. In addition, the SSHO as well as ECC employees, shall observe for pedestrian and vehicle traffic that may unknowingly enter designated work areas and take action to stop their unauthorized entry. A security guard will be posted at Cemetery 2 during off-work hours.

At the end of each work period, any open excavations shall be barricaded in all directions with barricades, and all barricades connected by a double run of barrier tape.

8.2 Decontamination

Based on the scope of work for the project, work activities are expected to be performed in PPE levels D, Modified D, and C. Decontamination will be required on any personnel or equipment prior to exit from the EZ established for each applicable project activity.

8.2.1 Temporary Exit

Temporary exit from the immediate work area for breaks, lunches, etc., will require the following procedures:

- Remove PPE prior to entering SZ;
- Rinse gloves with soap and water to remove excess contamination;
- Gloves, protective suits, and booties will be removed as appropriate;
- Hands and face will be thoroughly washed; and
- Protective clothing will be stored in a manner to avoid potential contamination of inner surfaces.

8.2.2 Exit from the Site

Exit from the site requires procedures as described below:

- Remove PPE prior to entering the SZ;
- Rinse gloves with soap and water to remove excess contamination;
- All gloves, protective suits and booties will be removed at the end of the days work or prior to leaving the site; and
- Protective clothing will be stored in a manner to avoid potential contamination of inner surface.

8.2.3 Means of Decontamination

All personnel, clothing, and equipment leaving the contaminated area of the site will be decontaminated to remove any harmful chemicals. The decontamination facilities will be located in the CRZ. The decontamination procedures will be an organized process with a series of stations to provide the maximum level of decontamination. The decontamination area will be clearly defined and equipped with all necessary equipment. All equipment/solutions used for decontamination will also be decontaminated and/or disposed of properly.

The procedure will vary depending on the appropriate level of PPE from site to site but will always include the following steps:

- Equipment drop;
- Outer boots and gloves wash/rinse;
- Outer boots and gloves removal;
- Suit wash/rinse/removal;
- Inner glove wash/rinse;
- Face piece removal and wash/rinse;
- Inner glove removal;
- Field wash of face and hands.

Personnel assigned to the decontamination process will assist workers and decontaminate equipment and reusable protective gear. All field equipment such a probes, tool, etc., will be decontaminated with a solution of alconox and water and rinsed with water before the equipment is stored for future use. Rinsate will be placed in 55-gallon drums.

For the decontamination of heavy equipment, a bermed decontamination stage will be set up with a double layer of plastic sheeting. The equipment will be brought to this area and washed with water and alconox. The decontamination fluids/wastes will be solidified using floor-dry and placed in 55-gallon drums and labelled and disposed of properly.

In an emergency situation, in which personnel need to be transported off-site for medical attention, the employee will be decontamintaed before leaving the site. If life saving care must be given immediately, then decontamination will not be considered. Each case will be evaluated individually by the SSHO.

8.2.4 Disposal of Decontamination Materials

Material such as decontamination rinsate and PPE resutling from decontamination activitities will be placed in 55-gallon drums and disposed of at an appropriate facility.

8.2.5 Equipment Decontamination

All equipment and hand tools used in the EZ shall be decontaminated in the CRZ prior to entering the SZ. Equipment decontamination will consist of the following:

- Wiping down hand tools with lint-free rags moistened with decontamination solution; and
- Cleaning tires and bucket/blade with a wire brush and collecting removed soils and placing in a drum.

ECC's SSHO shall be responsible for monitoring all vehicle decontamination prior to exiting the site. Personnel engaged in vehicle decontamination shall wear PPE including disposable coverals and respiratory protection consistent with the requirements of this SSHP.

An area shall be established by ECC for performing equipment maintenance. This area shall be used when personnel are required by normal practices to expose themselves to contact with ground soil and working under a vehicle to change engine oil. All equipment shall be decontaminted by wash down in the CRZ prior to maintenance work.

Maintenance work such as greasing heavy equipment (where equipment has not had direct contact with impacted soil) will not require decontamination prior to servicing. Seats of equipment and vehicles used in the EZ will not be cloth covered. They will be free from cracks or holes that would allow dust to enter seat padding or shall be covered with a temporary plastic sheet covering.

8.3 Tailgate Safety Meeting

The SSHO shall conduct a Tailgate Safety Meeting at the beginning of each work shift with all field personnel, including subcontractor personnel. The Tailgate Safety Meeting includes, first and foremost, a review of each Activity Hazard Analysis for each work task to be performed during that shift. All site visitors are to be briefed on the operations and daily Tailgate Safety Meeting information prior to entering a designated EZ. Copies of all Tailgate Safety Meetings shall be maintained on site during the project and shall be provided to the COR upon request. Topic for tailgate safety meetings include the following: site safety; medical surveillnce program; review of SSHP; chemical/phyical hazards; PPE; decontamination; and emergency assistance network.

Weekly safety meetings are required for all workers and shall be documented. Monthly safety meetings are required for management. The purpose of these meetings is to plan and discuss success and problems and plan for the next month.

8.4 Safety Inspections

The SSHO shall perform a daily safety inspection of the work site. The SSHO shall ensure that all immediate hazards are corrected before work proceeds and that all other hazards and potential safety situations are corrected in a timely manner in relation to this project (i.e. one to three days).

In addition, the SSHO shall perform a specific safety inspection of each piece of equipment to be used that day. The equipment inspection shall be documented using a Safety Inspection Checklist for Construction Equipment. Any defective items or conditions shall be corrected by the PM before the commencement of work.

Copies of all safety inspections, both work site and equipment, shall be maintained on-site during the project and shall be provided to the COR upon request.

The USACE safety office shall conduct announced visits and their observations are documented within a written report. The QC officer shall document these visits and make entries into the QC reports.

8.5 Accident Investigations/Recording and Record Keeping

In the event of an injury, illness, or near miss, the incident shall be immediately reported to the Field Supervisor or SSHO. If required, emergency medical care or first aid shall be rendered. The Field Supervisor shall then initiate a Supervior's Report of Injury and all other documents required for injury/illness reporting and worker's compensation claims.

As soon as possible after the occurrence of an occupational accident, but not more than 24 hours, the SSHO shall initiate an accident investigation. The accident investigation shall be documented on an Accident Investigation form. The purpose of the accident investigation is to identify the causes of the incident in order to take corrective action to prevent future occurrences.

All accidents are reportable and shall be reported on POD Form 265-R dated June 98 (Appendix G) withing 24 hours to the Safety Office (phone: 808-438-6931; fax: 438-7801) and the respective resident office (fax: 655-2313). An ENG Form 3394 is requried within 5 days of the accident if it involves lost time or property damage of $2,000 or as directed to the Safety Officer or Commander. In addition, the SSHO shall immediatly notify the COR of the reported injury, illness, or near miss. In the event of an accident, the Quality Assurance Representative (QAR) and Safety Office will assist if needed.

Finally, the SSHO shall maintain a project log of all recordable injuries and illnesses. Please refer to Appendix G, which also includes the ECC Accident Investigation Report. All man-hours are required to be reported at the end of the month to the quality assurance representative as required by EM 385-1-1. See section 11.2 for OSHA recording procedures.

8.6 Personal Hygiene

ECC management shall ensure that adequate drinking water, toilet facilities, and hand washing facilities are available daily to all field personnel. For drinking water, at least one gallon per person shall be provided daily. Potable water shall be supplied from a pressurized source (i.e. tap water) or commercially available bottled water. Disposable drinking cups shall be provided at each work location and shall be stored and made available in a sanitary manner. Any non-potable sources of water shall be clearly marked. A break/lunch area will be established on-site in the SZ.

8.7 Housekeeping

A strict housekeeping program shall be implemented daily at each work location. The purpose of the house keeping program is to prevent fire and accumulation of items that could cause injury. A housekeeping program also helps to reduce unwanted spread of contamination, debris, or other material to any areas. The SSHO and Field Supervisor shall both be responsible for ensuring that good housekeeping is maintained at all times during the project.

The following housekeeping procedures apply to this project:

- Only in use equipment and tools shall be off-loaded from vehicles;
- Work areas shall be continuouly "policed" by field personnel and the Field Supervisor for cleanliness and orderliness;
- All spills shall be immediately cleaned up;
- Any loose dirt and debris that is not part of a designated spoils pile (from excavations) shall be immediatley cleaned up;
- No dirt or loose debris shall be left in any work area, or allowed to leave any work area either by vehicle, foot, or wind moveemnt;
- Spoil piles shall be kept covered with plastic. Covers shall be weighted down with sand bags (or equivalent) to keep in place; and
- In wind conditions, excavated soils may be lightly wetted with a water fog to reduce airborne dust. No water run-off shall be generated or allowed.

All field personnel shall be instructed on the basic emergency actions to take in the event of a medical or chemical emergency. This instruction shall include actions to take to preserve personal safety, how to make emergency notifications, basic first aid/assistance procedures, staging and use of emergency equipments and evacuation procedures, and shall be reviewed during each Tailgate Safety Meeting.

8.8 Fall Protection

In the event fall protection is required, ECC will comply with USACE Fall Protection Program (EM385-1-1 section 21.A.15). Employees shall be protected by standard guardrail, catch platforms, temporary floors, safety nets, personal fall protection devices in the following situations: 1) on access ways (excluding ladders) or work platforms from which they may fall 6 feet or more, 2) on access ways or work platforms over water, machinery,or dangerous operations. Full body harnesses shall be required for personal protection. Body belts (waist only) may only be used for positioning devices.

All employees will be trained by the SSHO in the safe use of access ways and fall protection systems and the recognition of hazards related to their use, including: 1) the nature of access and fall hazards in the work area, 2) the correct procedures for constructing, erecting, maintaining, using, and dismantling access ways and fall protection systems, 3) the maximum intended load-carrying capacities of access ways and fall protection systems, and 4) all applicable requirements from this section.

8.9 Site Security

ECC shall post signs and attach labels as required. Signs shall be visible from all points where entry might occur and at such distance from the restricted area that employees may read the signs and take necessary protective steps before entering. Signswill be in English, Carolinian, and Chamorran, and they shall be located around the work area and at the entrance of the site. These signs shall read

"DANGER – HAZARDOUS MATERIALS (PCBs) - KEEP OUT". In addition, ECC shall ensure the following:

- "No Smoking" signs shall also be posted at the entrance to the excavation area;
- Warning signs shall be posted around the entrance and exit of confined spaces;
- An OSHA Job Safety and Health Protection Posted sign shall be posted at an area in the SZ where site personnel routinely take breaks; and
- MSDSs shall be available on site, for all hazardous materials brought to the site by ECC, in accordance with OSHA 1910.1200 "Hazard Communication Standards" or, for construction, 29 CFR 1926.59.

A wire-mesh fence will be constructed around the soil holding cells for security during the period after soil removal and before soil treatment. Monthly inspections of the soil holding cells will be performed during this period.

8.10 Ladders

Ladders shall be approved for the type and height of work being performed. Ladders must be secured to prevent slippage and extend 3 feet past the landing. Job built ladders shall comply with ANSI standards A 14.1-14.5 1992. Employees must be trained in the hazards and proper use of ladders.

8.11 Lockout/Tagout Program

Authorized employees shall determine which switch valve or other energy isolating devices shall be used. More than one energy source (electrical, mechanical, pneumatic) may be involved. Before lockout commences, job authorization shall be obtained.

8.11.1 Sequences of Lockout Procedures

Notify all affected employees that a lock is required and the reason. If the equipment is operating, shut it down following normal procedures. Operate the switch, valve, or other energy isolating devices so that the energy source is disconnected or isolated from the equipment. Stored engergy must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding, etc. Lockout energy isolating devices with an individually assigned lock. After ensuring that no personnel are exposed, ensure that the equipment will not operate by engaging the power button or normal operating controls.

8.11.2 Procedures Involving More than One Person

If more than one individual is required to lockout equipment, each shall place his/her own lock on the energy isolating device. One designated individual or supervisor, with knowledge of the work crew, may lockout/tagout for the entire crew. No member of the work crew shall start work until advised by the designated individual that the lockout is complete and it is safe to begin. The designated individual is

reponsible for carrying out all the steps of the lockout procedures. The designated individual shall not remove any lock or tag until personally verifying that all members of the crew are clear of the equipment.

8.11.3 Procedures Involving Personnel Changes During the Job

Employees being replaced or exchanged on a job during shift shall ensure that the lock and tag his/her replacement are substituted for his/her own before leaving the job. Employees being replaced on a job at the end of a shift shall ensure that the locks and tags of the replacement employee are substituted for his/her own before leaving the job.

8.11.4 Procedures When Work Is Left Unfinished

Lock, tags, and all other safety warning devices shall be left in place during all short absences such as breaks or trips for parts. When work is incomplete and temporarily suspended, all locks, tags, and other safety warning devices shall be left in place.

8.11.5 Actions When Physical Locking is Impossible

When it is impossible to use a lock, another means of disconnecting the equipment or machinery must be used. Other means include: unplugging the equipment, disconnecting the conductors, fuse brackets, or removing fuses. All steps of the process are the same as Lockout. A tag must be placed on the plug, conductor, fuse bracket, or other means.

8.11.6 Restoring the Equipment to Service

Close and secure all cover panels and doors. If all cannot be closed, place barricades or rope off a safety zone. Advise all affected employees that the system is to be re-energized. Ensure that all persons are clear of the equipment. Remove all locks and tags. Only the person who placed the locks and tags may remove them. If the person is unavailable, only the supervisor may remove the locks and tags after personnaly ensuring it is safe to do so. Energize the equipment thereafter.

9.0 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

Emergency conditions that may be anticipated during work activities include:

- Fire involving combustible materials;
- Medical emergency due to physical accident or exposure to toxic materials; or
- Release of hazardous materials.

In the event of a release of hazardous materials or fire, ECC's PM will be the Incident Commander and will determine the appropriate level of response. Provisions have been made to evacuate residents in the event that the work presents a hazard. USACE will supervise all evacuation events. An evacuation plan has been developed and is included as Appendix H.

9.1 Emergency Supplies

At a minimum, the following supplies must be immediatley available for on-site use:

- First aid equipment and suppies;
- Emergency eyewash station as per ANSI Z-358-1;
- Emergency use respiratory equipment;
- Spill Control material and equipment;
- Type ABC fire extinquisher, 10 pound capacity, minimum of two; and
- An emergency vehicle parked at an exit from the cleared area.

9.2 Contingency Plan Execution

In the event an emergency situation should arise while performing site activities, ECC employees shall follow USACE procedures. Be prepared to give the following information when calling the Emergency Number (911):

- Your name;
- Description of emergency;
- Exact location of the emergency; and
- Any other pertinent information.

Upon discovering an emergency, the following series of events will occur:

- Notification of personnel;
- Stop work activities if necessary;
- Lower background noises;
- Begin emergency procedures (not in order, depending on the situation);
- Survey casualties;

- Assess existing and potential hazards to site personnel and off-site populations;
- Request aid if necessary;
- Allocate resources;
- Extricate and stabilize victims;
- Bring the hazardous substance under control; and
- Evacuate if necessary.

9.3 Emergency Numbers

The following table lists emergency telephone numbers for this project. Emergency telephone numbers will be posted in the ECC site.

Table 9.1
Emergency Numbers

ORGANIZATON	TELEPHONE NUMBER
For all emergency services In addition: Police Fire/Ambulance Civil Defense	Call 911 234-6333 or 6431 644-900 or 9083 322-9274 or 9529
CIH – Marcus Johnshoy CSP – Dean Osaki	(303) 298-7607, pgr (888) 751-7701 (650) 347-1555, pgr (888) 694-2434
Hospital: Commonwealth Health Center 2W Highway Garapan	(670) 234-8950 or 8951-6
USACE Contact – Helene Takemoto	(808) 438-6931
ECC Program Manager – Dave Cavagnol	(808) 486-3707, pgr (800) 747-5309
ECC Project Manager – Kevin McCaskill ECC SSHO – Morris Ridenour	(670) 287-8744 (670) 287-8745

9.4 Communications

Two sets of communication systems will be established; internal communications among personnel on site, and external communication among on-site and off-site personnel. Internal communication will be used to:

- Alert team members to emergencies;
- Maintain site control;
- Communiate changes in work to be accomplished to an emergency situation; and
- Pass along safety information, such as air change, amount of air time left before break, etc.

Visual signals will be used for communication during operations. Cellular phones will be used for off-site communications.

9.5 Emergency Recognition and Prevention

Emergency recognition and prevention training will be included in the daily tailgate safety meetings. By discussing the tasks to be performed, time constraints, emergency procedures, and hazards that may be encountered, personnel should be alert to the dangers and potential emergencies.

9.6 Site Evacuations

Safe distances will be determined at the time of the emergency. The following factors which influence safe distances will be taken into consideration:

- Toxicological properties of the substance;
- Physical state of the substance;
- Quantity released;
- Rate of release;
- Method of release;
- Vapor density relative to air;
- Wind speed and direction; and
- Local topography.

9.7 Decontamination and Medical Treatment

Whether or not to decontaminate the victim will be based on the type and severity of the illness or injury and the nature of the contaminant. If decontamination cannot be done the victim will be wrapped in blankets, plastic, or rubber to reduce the possibility of contamination to other personnel. The medical facility will be informed of the potential contamination and a site representative will accompany the victim. A route map to the nearest hospital is included in Figure 3.

9.8 Documentation and Review

After the response, ECC will prepare an Emergency Response Report. It will include such things as a chronological history of the emergency, facts, action, personnel present, sample results (if taken), summary of injuries, and possible exposures. This report will be given to the USACE within two days of the incident along with immediate verbal notification.

9.9 First Aid

Two employees certifed in both First Aid and Cardio-pulmonary resuscitation (CPR) are required on the project at all times as required by EM 385-1-1. A first aid kit must be maintained on site and checked weekly. A log of items used will be maintained.

10.0 SPILL AND DISCHARGE CONTROL

ECC will provide contingency measures for potential spills and discharge from trucks handling transportation and any other potentially hazardous materials on site. ECC will:

- Provide method, means, and facilities to prevent contamination of soil, water, air, structure, equipment, or material from a release due to ECC's operations;
- Trucks will be tarped when travelling;
- Provide equipment and personnel to perform emergency measures to mitigate spills and control their spreading;
- Dispose of contaminated materials; and
- Provide a decontamination program to clean previously uncontaminated areas.

10.1 Equipment Required

ECC will have the following equipment on site and all items in order to handle hazardous material releases:

- Non-combustible absorbent;
- Pump;
- 55-gallon drums (DOT 17-E or 17-H); and
- Shovels.

10.2 Contingency Plan

As per USACE instructions, the following requirements will be met during a spill response action:

- Notify the COR immediately;
- Take immediate measures to control and contain the spill;
- Isolate and contain hazardous spill areas;
- Deny entry to unauthorized personnel;
- Do not allow anyone to touch spilled material;
- Stay upwind; keep out of low areas;
- Keep combustibles away from the spilled material;
- Use water spray to reduce vapors and dust, as needed;
- Take samples for analysis to determine that cleanup is adequate;
- If release from tanks, prevent discharge beyond site boundaries; and
- Caution should be taken (opening, sampling, and over packing) when handling drums and containers.

10.3 Notification of Spills and Discharges

ECC will present a report no later than two days after a release to include the following items:

- Description of material spilled, including identity, quantity, and a copy of the waste disposal manifest;
- Exact time and location of the spill, and the description of the area involved;
- Containment procedures utilized;
- Description of the cleanup procedure employed at the site, including disposal of spill residue;
- Summary of the communications ECC had with other agencies; and
- ECC personnel will be responsible for all notificications to EPA or other appropriate agencies.

11.0 LOGS, REPORTS, AND RECORD KEEPING

11.1 Exposure of Personnel

All injuries and accidents will be reported promplty to the SSHO. Reportable incidents include, but are not limited to:

- Injuries to personnel resulting in lost time;
- Tool or equipment failure which results or could result in serious injury;
- Fire or explosion of any magnitude;
- Exposure of unprotected personnel to toxic agents;
- Vehicle accidents; and
- Any damage to client or private property.

All injuries/illnesses, no matter how minor they appear , are to be reported to the PM/SSHO. They should then ensure that the incident is logged and properly reported. The OSHA 200 Log is required for all projects as noted in the safety manual. Recordable injuries/illnesses must be logged within 3 days.

Accidents resulting in fatality, serious injury requiring hospitilization of 3 or more employees, or property damage of $200,000 or more shall be immediately reported to the COR by telephone.

Under no circumstances should an injured employee drive himself/herself to the hosipital, clinic etc. An employee with minor injury may be transported by car after first aid treatment is given. The employee who transports the injured person should be trained in first aid and CPR whenever possible. In the event the injury is severe, or when in doubt of severity of injury, the employee should be transported by ambulance.

Injured empoyees that require medical treatment or have been taken to a doctor, hospital, clinic, etc., should not be allowed to resume work without a written return to work or any work statement form the treating physician. This statement should give diagnosis, date of return to work, and work limitations. Should a statement such as “light duty” be given, call the treating physician to determine the exact restriction that is needed. Be sure that the treating physician understands the type of work the employee normally performs and that alternate work is availabe to meet work restrictions.

11.2 OSHA Recording Procedures

All injuries, no matter how minor they appear, are to be logged as required by OSHA (Form 200) This provides a record per exposure limits and audits safety. Minor injuries such as small cuts, scrapes, small first degree burns, and splinters that require first aid treatment are entered on this log only. Any incident that requires the completion of the Incident Investigation Report must also be logged.

Maintaining this log will help in meeting OSHA record-keeping requirements and in responding to minor incidents before they become major.

11.3 OSHA Records

The following records will be archived in ECC's permanent project files:

- Occupational Injuries and Illnesses - 5 years;
- Training (Hazardous Waste and Operations) - Current;
- Exposure Measurements (Hazardous Waste and Operations) - 30 years; and
- Medical Surveillance (Hazardous Waste) - 30 years.

An OSHA state/federal poster shall be posted in a conspicuous location at the project site.

11.4 OSHA Site Visits

OSHA has the authority to come on the project site and enforce any regulation issued. Please notify the QAR if OSHA visits the poject site. The QAR should notify the Safety Office. There are two branches of OSHA. The Compliance branch isues citations and penalties, while the Consultation branch provides guidance on compliance with OSHA requirements. OSHA violations may be appealed withing 15 working days. Penalties will be greater in the event that you have been cited previously for the same violation.

12.0 ACCIDENT PREVENTION PLAN

ECC's SSHO will implement the Accident Prevention Plan (APP) for the period of on-site work. A copy of POD Form 248-R is presented in Appendix G. The following provisions will be included in the APP:

- The SSHO shall be responsible for maintaining a clean job site free from hazards and providing safe access and egress from the site. Physical barriers delineating a work site will be utilized for traffic control and limiting access to hazardous and restricted areas;
- A competent person shall be present at all times during excavation activities;
- ECC Field Employees shall use correct safety measures during excavation, stockpiling, and soil-sampling of PCB-contaminated soils at the Tanapag Cemetery. Exposure monitoring shall be conducted continuously during excavation and stockpiling;
- Emergency phone numbers shall be posted in a conspicuous location for the fire department, ambulance service, and the nearest emergency medical clinic/hospital. A map and directions indicating the fastest route to the clinic/hospital shall also be posted. A mobile telephone or communication system shall be present on site during the excavation/stockpiling and sampling activites. The SSHO shall be the lead person in all emergency situations;
- A daily Tailgate Safety meeting will be conducted to discuss pertinent safety topics at the beginning of each shift, whenever new ECC personnel arrive at the job site, and as site conditions change. These meetings shall be conducted by the SSHO;
- Continuous air monitoring of the site conditions shall be conducted by the SSHO; and
- Only competent equipment operators shall be used.

12.1 Accident Investigation Report

See section 11.2 for OSHA recording procedures. The Accident Investigation Report required by the the supervisor is to be completed in the following work-related circumstances:

- Any work-related injur/illness which involved medical treatment (by doctor, hospital, clinic, chiroprctor, dentist) or death of an employee; and
- The Accident Investigation Report is be completed the day of the injury/indicent. A copy is to be kept in the site files. The original is to be sent to the main office to be filed in the employee's personnel/training file. The SSHO shall immediately notify the COR of the reported injury, illness, or near miss, and shall complete a USACE Accident Investigation Report - Form 3394 (Appendix G) for all lost time accidents and equipment damage. The report shall be turned in within 3 days of occurrence to the COR.

12.2 General Site Safety Requirements

12.2.1 Good Housekeeping Practices

Every member of the on-site crew will adopt safe work practices as it pertains to their work to prevent dangerous and unsafe conditions.

12.2.2 Ignition of Flammable Materials

Ignition of flammable materials in the work zone is forbidden; equipment shall be bonded and grounded, spark proof, and explosure resistant, as appropriate.

12.2.3 Buddy System

Most activities at the site will be conducted with a buddy who is able to:

- Provide his or her partner with assistance;
- Observe his or her partner for signs of chemical or heat exposure;
- Periodically check the integrity of his or her partner's PPE; and
- Notify the PM or others if emergency help is needed.

A minimum number of personnel for efficiency and safety will be present in the EZ.

13.0 REFRENCES

National Institute for Occupation Safety and Health (NIOSH) 85-101 NIOSH Certified Personal Protective Equipment (PPE) List.

Occupational Safety & Guidance for Hazardous Waste Activities; 10/85. (DHHS) (NIOSH) Publication No. 85-115.

USACE "Safety and Health Manual", EM 385-1-1 (Safety and Health Program).

ER 385-1-92 Safety and Occupation Health Document Requiremens for HTRW and OEW Activities.

29 CFR 1910 (specifically 1910.120).

29 CFR 1926.65 - HAZWOPER; 29 CFR 1518 - Safety and Health Regulations for Construction.

U.S. Army Material Command's Safety Manual, AMCR 385-100.

U.S. Environmental Protection Agency's Hazardous Waste Requirements (40 CFR 260-270).

ECC shall have a copy of EM 385-1-1 on the project site at all times. During safety visits from the USACE, ECC may be asked to present a copy of the manual.

Appendix A
Visitors Log

Appendix B
Activity Hazard Analysis

Appendix C
Safety Inspection Checklist for Construction Equipment

Appendix D
Compliance Agreement

Appendix E
Material Safety Data Sheets

Appendix F
Tailgate Safety Meeting Form

Appendix G
Accident Investigation and Reporting Forms

Appendix H
Evacuation Plan